

California Division of Mines and Geology

Fault Evaluation Report FER-7

June 17, 1976

1. Name of fault: Alamo Mountain thrust and related faults.
2. Location of fault: McDonald Peak and Black Mountain quadrangles, Ventura County, California.
3. Reason for evaluation: Part of 10-year program; zoned in Ventura County's Seismic and Safety Element (Nichols, 1974).
4. List of references:
 - a) Crowell, J.C., 1964, The San Andreas fault zone from the Temblor Mountains to Antelope Valley, southern California: in Pacific Section A.A.P.G.-S.E.P.M. and San Joaquin Geological Society Guidebook, p. 8-38, pl. 1, scale 1:62,500. Remarks: Base map shows streams, roads, and township and range only (no topography); covers the northern part of fault ^{segments} ~~limbs~~ AB and BC (see figure 1).
 - b) Crowell, J.C., McClure, D.V., Kienle, C.F., and Edwards, L.N., 1967, Geologic map of the eastern end of the Santa Ynez fault zone: University of California, Santa Barbara, unpublished field studies, scale 1:250,000. Remarks: This source is the only original mapping available for the Alamo Mountain thrust not covered by reference "a".
 - c) Jennings, C.W., and Strand, R.G., 1969, Geologic map of California, Los Angeles sheet: California Division of Mines and Geology, scale 1:250,000.

- d) Jennings, C.W., 1975, Fault map of California with locations of volcanoes, thermal springs, and thermal wells: California Division of Mines and Geology, California Geologic Data Map Series, Map no. 1, scale 1:750,000.
 - e) Nichols, D.R., 1974, Surface faulting in Seismic and Safety Elements of the Resources Plan and Program: Ventura County Planning Department, section II, p. 1-35, pl. 1.
 - f) Weber, F.H., Jr., Kiessling, E.W., Sprotte, E.C., Johnson, J.A., Sherburne, R.W., and Cleveland, G.B., 1975 (Preliminary Draft of 2/27/76) Seismic hazards study of Ventura County, California: California Division of Mines and Geology, work in progress as a cooperative project with Ventura County.
5. Summary of available data: The Alamo Mountain thrust, a low angle thrust fault (shown in color in figure 1), is zoned as a secondary fault hazard zone by Ventura County in their Seismic and Safety Element (Nichols, 1974). I assume that no attempt was made by Nichols to determine which faults were inactive because essentially all faults shown by Jennings and Strand (1969) are zoned in the County's Seismic and Safety Element.

The source of mapping used by Jennings and Strand (1969) was Crowell, et al., unpublished, 1967 (in Jennings' file). Crowell mapped the fault as not cutting the Hungry Valley Formation (Pliocene, Puc on figure 2). Further, he states (p. 11) that the faulting took place prior to the "emplacement of a younger quartz monzonite sometime in the Mesozoic", probably in the Late Cretaceous. Also, Jennings and Strand depict a strand of San Gabriel fault as truncating the easternmost branch

(BD on figure 1), indicating that the San Gabriel fault postdates the Alamo Mountain thrust fault. Because this particular strand of the San Gabriel fault (as well as a second strand) does not cut Quaternary terrace deposits of probable Pleistocene age, this segment of the San Gabriel fault is presumed to be pre-Holocene, as is the truncated Alamo Mountain thrust (figure 1).

Weber, et al. (1975, p. 176) did not study the evidence for recency of activity of the Alamo Mountain thrust. Jennings (1975) depicts the fault in black color, indicating that he had no evidence that the fault cut Quaternary units.

6. Interpretation of air photos: Not studied, good photos not readily available; on U-2 photos that were available the fault was obscured by cloud cover.


7. Field observations: None; not considered necessary in light of evidence cited in item 5.

8. Conclusions: Fault strands AB and BC are buried by Pliocene sediments and are, therefore, presumed to be inactive. Fault strand BD has no Quaternary units mapped along it, however, it is truncated by a fault which has been mapped as not having moved during the (Late) Pleistocene or earlier. Based on the evidence presented, the Alamo Mountain thrust is presumed to be a pre-Quaternary fault.

9. Recommendations: No further investigations or zoning seem justified given the data on hand. Zoning of this fault is not recommended at this time.

(prepared by T.C. Smith)

10. Investigating geologist's name, date:


THEODORE C. SMITH
Assistant Geologist
June 18, 1976

11. Review comments:

*I concur -- no evidence that the Alamo Mtn. thrust fault
is active (i.e. Holocene).*

ECU
6/29/76